War and the Birth Rate— A Brief Historical Summary*

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WAR, as might be expected, affects the course of the birth rate. But the extent of the change from the normal pattern varies widely. Our opinions on this matter are affected to a great extent by what has happened in the two World Wars of the present century. However, there is little ground for believing that these recent experiences are typical of what has happened generally in wartime: indeed, even in these two great conflicts there are remarkable differences as between the various belligerents.

We have comparatively little factual knowledge regarding the extent to which most wars of history have affected the birth rate because the compilation of birth statistics as well as of vital statistics generally is only a relatively recent development. We may conjecture that during some of the great wars of conquest, such as the wars of Alexander and those of the Crusades, in which large numbers of men were involved, the birth rate in the communities from which the men were drawn may indeed have fallen sharply. On the other hand, the wars which involved mass movements of whole populations, such as those which brought the hordes of central Asia into Europe, may have had little effect on the birth rate of the conquering peoples. In the wars of western Europe from the 15th to the 18th centuries, the birth rate could not have been affected appreciably because armies were comparatively small and very frequently consisted of mercenaries. A probable exception is the Thirty Years' War, when parts of Germany were overrun again and again, and the population was decimated. Possibly another significant exception is Sweden when she was at her height of power. Since she was a comparatively small nation, a sizable proportion of her ablebodied men was probably absent from the country on military service. Most of the wars of the 19th century also involved comparatively small bodies of troops. This was particularly the case with England which engaged in many wars during this time; her small armies usually consisted of professional soldiers and troops drawn from the colonies.

Our earliest concrete evidence of the effect of war upon the birth rate is provided by the records for France early in the 19th century. These data are of particular interest since they cover part of the Napoleonic wars, for which large armies were first organized on the basis of national levies. For most of the period from 1801 to 1811, the

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recorded births showed little variation from year to year, the range from the high to low during this period being only 5 per cent. There was, however, a decrease of 5 per cent in the single year from 1811 to 1812; this may perhaps be associated with the Napoleonic invasion of Russia. In 1814, there was a sharp increase in births, and for a short period the figures remained at a constant level. The war with Prussia in 1870 caused a moderate, but very temporary reduction in the birth rate, from 25.5 per 1,000 in 1870 to 22.9 in 1871, but there was an immediate recovery. Figures for Germany for those years also showed a drop, from 38.7 in 1870 to 34.5 in 1871; as in France, there was an immediate recovery after the war above the pre-war level.

In our own country, the Civil War provides the first opportunity to observe the effect of war upon the birth rate. Unfortunately, birth records on a national scale for that time are not available. Looking through the records for Massachusetts, it is found that the birth rate fell from a level of 29 per 1,000 in 1860 and 1861 to 25.9 in 1862; the decline continued throughout the war and immedately thereafter, reaching a low point of 23.2 in 1866. There was a sharp recovery to 26.2 per 1,000 in 1867.

The conflicts around the turn of the century, such as the Spanish-American War, the Boer War, and the Italo-Turkish conflict had little apparent effect upon the birth rates of the countries involved. On the other hand, the birth rate in at least one of the Balkan countries, Bulgaria, showed a marked decline during the series of conflicts that occurred there just before the outbreak of the first World War.

The World War of 1914–1918 is the first for which there is well documented evidence of the adverse effect of war upon the birth rate. For the war period as a whole, including 1919, the birth rates were less than 60 per cent of the pre-war normal in Hungary; about 60 per cent in France, Germany, Belgium, and Bulgaria, and about 65 per cent in Italy and Austria. In England, the effect of the war upon the birth rate was not only much smaller but was relatively long delayed. There, the wartime average was as much as 80 per cent of that in the immediate pre-war period. It will be recalled that the English Army was recruited on a voluntary basis until 1916 and that even then her new troops had to undergo a period of training at home. Consequently, the decrease in that country was not severe until 1917. The birth rate for the United States was affected only slightly, partly because of the short period of our participation and partly because of the spurt in the marriage rate in anticipation of the draft for military service.

The population losses resulting from the first World War were recently summarized by Notestein and his associates in their notable book, *The Future Population of Europe and the Soviet Union.* For Europe exclusive of Russia, the total population losses due to the war, including civilian deaths in excess of normal, were estimated at 22,400,000. Birth deficits accounted for 12,600,000 of this total, or about double the military losses. To Soviet Russia alone the war and the revolution brought a deficit of nearly 10,000,000 births. In several countries the curtailment of births during the war period corresponded to the total number of births of two whole normal years.

It is of interest to note the trend of birth rates in the neutral countries during this period. In Holland and the Scandinavian countries birth rates were hardly affected, showing generally a continuation of the long-term downward trends. The Swiss birth rate, however, declined rather sharply.

Hardly less important than the immediate effects of the first World War

on birth rates were the longer-term effects. It is true that there was a post-war resurgence in birth rates in all the belligerent countries after the war. But this rise was related to the high marriage rates after demobilization and was purely temporary. Even so, the maximum birth rates in the immediate post-war years were usually below the pre-war average and in practically all countries the long-term downward trend already in evidence before the war was resumed. A considerable part of this later decline reflects the reduction in the number of potential fathers —the young men who were killed during the war or who were so badly maimed that they did not marry. Nearly three-fourths of the German soldiers killed during the war and well over half of the French losses were men under 30. Altogether, about one-fifth of all the men between 20 and 30 in the two countries were killed during the conflict. Thompson, using the 1927 birth rate as a basis, estimated, for Germany alone, the post-war deficit of births arising from deaths of young men during the war at 2½ million, a figure roughly of the same order as the birth deficit during the war itself. Fortunately, our own losses during our short period of active participation constituted only a small proportion of our men of marriageable age.

The two decades between the great global conflicts have also witnessed bitter struggles. In this period, Japan began her cruel war against the Chinese, which has gone on for so many years now. No records exist which show how the birth rate of China has been affected. It is estimated that perhaps as many as 40,000,000 persons were forced to flee to inner China. In such circumstances, with many families broken in the course of their wanderings, the birth rate was bound to fall from the high level that is normal for the country. Japan's birth rate likewise has fallen appreciably, although probably not as fast as China's.

The bitter civil conflict in Spain brought a sharp reduction in the birth rate in that country. While the statistics are probably incomplete, they show a birth rate of only 16.2 in 1939, as compared with 24.1 in 1936.

This brings us to World War II. At the outbreak of this global conflict, France and Germany were more conscious of their population problems than most other countries of the world. In France, the long standing problem of depopulation gave rise, among other things, to a system of family allowances with the hope that this would have a beneficial effect upon the birth rate. Germany's program stemmed almost wholly from the accession of the Nazis to power. Her steps to increase the birth rate were much more positive than those of France and apparently produced better results. A large part of Germany's pre-war gains, however, may have resulted from the rise in employment due to her rearmament program, and from stern measures against abortion. Strongly mindful of her population policy, Germany, in opening the war, continued these pre-war measures with practically no modifications, and in addition gave suitably spaced furloughs for married soldiers in order to prevent a decline in her birth rate. Other less conventional methods were also encouraged with this end in view. An account in "Population Index" of October, 1942, based upon a study of monthly birth rates for Germany early in the war showed that until after April, 1940, the rates for that country showed little adverse effect. The peak which fell in April, 1940, was associated with the high marriage rates prevailing during the early summer months of 1939. On the other hand, the sizable decrease in the birth rate in May and June of 1940 was associated with the mobilization of the

armed forces in the preceding August and September. Subsequent variations in the birth rate from month to month were traced to the large scale furloughs granted following the conquest of Poland, to the recall of troops for the offensive in western Europe during the spring of 1940, and to the period of relative freedom from hostilities in the summer following.

We can then understand why the birth rate of Germany did not recede much in 1940. Indeed, the rate for the year was actually somewhat above the immediate pre-war level. The subsequent exigencies of war have, however, outweighed any illusions that the German authorities may have entertained regarding the maintenance of the birth rate at a high level. From a figure 20 per 1,000 in 1940, the rate slumped to 14.9 in 1942, the latest year for which a figure is available. Thus, within two years, Germany's birth rate fell by 25 per cent. Figures for the large German cities for the first half of 1943 show a further decline and in all probability this has continued uninterruptedly.

The record of many of the countries overrun by Germany is very disheartening. In the case of France, it is evident that as a deliberate measure of keeping her population down, Germany has kept captive for more than four years about two million prisoners of war, most of them young men who are in the prime of reproductive life. France's birth rate had already been lower than her death rate since 1935. In 1938, the birth rate for France was only 14.7 per 1,000. This was reduced to 13 in 1941, France's minimum for the present war, a figure which may be compared with a low of 9.5 in World War I. In 1942, on the other hand, the birth rate in France rose to 14.3, with a further rise to 16 in 1943; the figure is practically back at the level of the birth rate a decade ago. The experience of Belgium has been even worse than for France. In Denmark and Holland, the birth rates, strange to say, have increased during the war, and in the former country, the 1943 rate was the highest in about fifteen years. Although there are no data regarding the other countries once occupied by Germany, a sharp reduction in birth rates has, undoubtedly, been suffered by Poland, Yugoslavia, and Greece.

Finland's birth rates have shown rather wide fluctuations during the war, apparently reflecting the changes in the military situation for that country. Italy, now our co-belligerent, showed a drop of about 14 per cent in her birth rate from 1940 to 1942. With war being waged on her territory since 1943, the birth rate there is undoubtedly falling sharply.

England's experience has been very different from that of the other countries at war. With most of her men kept within the country, the birth rate in the first years of the war declined only slightly from the level in the previous years. Despite the many interruptions to normal family life which that country experienced, the birth rate fell by only 5 per cent from 1939 to its low point in 1941. A sharp recovery in 1942, amounting to more than 10 per cent, and a further increase through 1943 brought the English birth rate back to the level of 15 years ago. Figures for the urban population of England through 1944 indicate a gain of about 10 per cent over 1943. Should this reflect the situation for the country as a whole, the birth rate for 1944 will be the highest since 1925.

Still another pattern in the course of the birth rate was experienced in the United States. The slow recovery of the rate since 1933, when the country was at the depth of the depression, continued rather steadily through 1939. Beginning with 1940, the rate mounted rapidly, being accelerated first by the sharp increase in industrial activity and

then by the great upswing in marriages in anticipation of the service draft. In the few years from 1939 to 1943, the birth rate was increased by 27 per cent. It is estimated that the number of births in 1943 was 3,200,000, about one million more than during the bottom year of the depression. The 1943 birth rate corrected for under-registration, was about 24 per 1,000 population, and the highest in nearly twenty years.

With millions of young men single and married, serving abroad in our armed forces, an interruption in the upward sweep in the birth rate was, however, inevitable. In this connection, the following estimates as of February, 1944, are pertinent. About 40 per cent of the married women under 20 had husbands in the armed forces. At ages 20 to 24, the peak of the reproductive period in women, this figure was 29 per cent, and at 25 to 34, it was 13 per cent. With increasing numbers overseas, it is no wonder that the birth rate in the last quarter of 1943 fell below that of the year before. For the entire year 1944, births were about 6 per cent under the figure for 1943; the number of births in 1944 may not be far from three million.

It is interesting that neutral Switzerland and Sweden have both experienced sharp increases in birth rates during the present war, in contrast to the downward trend during World War I. Wartime prosperity is probably a major factor in the recent increases.

The full price of the present war in terms of birth deficits will not be paid until long after the war, because most of the war dead are young men who were just beginning or were soon to take up family responsibilities. The postwar birth rate of Germany is likely to be most seriously affected because her losses of young men have been proportionately heavier than for any other belligerent. The Soviet Union, Poland, and some of the other eastern European countries are also likely to suffer a considerable post-war diminution of births on this account. Some of the countries which were swiftly conquered and occupied by the Germans escaped severe military losses, and their prospects for maintaining their birth rates are therefore brighter. As for England and the United States, it is still too early to know how great the long-term effect on the birth rate will be, because the ultimate size of the war losses for the two countries, depending as it does on the further course of the war, cannot be estimated accurately as yet. We are only now at the stage where our losses are likely to reach serious proportions. But an extended war, even with relatively light casualties, would cause a slump in the birth rate because it would keep so many young men overseas and would also further delay marriages, a circumstance which itself has an adverse effect on the birth rate.

While all the present belligerents will experience a sharp increase in births within a year or two after demobilization, this is again likely to be only temporary. The western world faces a continuation of the long downward trend of birth rates for a considerable period unless there is a prolonged economic revival, combined with intelligent national programs for the encouragement of larger families and a fundamental change in popular attitudes in this regard. Such programs will be urgently needed in many countries not only to maintain birth rates above the wholly deficient pre-war rates, and to make up for any low rates that occurred during the war, but still more in order to make up for the children who would ordinarily have been born to the men killed and maimed in the war. We must not forget that in many countries the loss in births during and after the last war exceeded the numbers killed in action.

From this brief survey it is clear that the effect of war upon birth rates is not

uniform. Many factors enter into the situation, usually adverse, but not invariably so. There is, however, one lesson which may be learned from the experience in the last war. Countries whose birth rates were declining before that conflict continued to show declines after the abnormal period induced by the war had passed. This condition will probably be repeated after this war, perhaps in accentuated form, if nations fail to establish positive population policies or to win popular support for them.

Fellowships in Health Education

Fellowships for graduate work in health education are being offered to qualified applicants by the U. S. Public Health Service, in coöperation with the National Foundation for Infantile Paralysis, Surgeon General Thomas Parran has announced. These fellowships for the collegiate fall term of 1945 are being awarded to meet present and future needs for trained health educators in schools, communities, and local, state, and federal health departments.

Men and women between the ages of 22 and 40 who are citizens of the United States and who hold a bachelor's degree from a recognized college or university may apply.

Fellowships will lead to a master's degree in public health. The 12 months' training period will consist of 9 months in graduate work at the University of North Carolina, Yale University, or the University of Michigan, and 3 months' field experience in community health education under supervision. Applicants must meet the requirements for admission to the universities named. Training in science, sociology, education, and psychology, plus experience working with people are desirable prerequisites.

The fellowships provide a stipend of $100 a month for 12 months, full tuition, and travel for field experience. Candidates must pay their travel to and from the university at the beginning and end of training.

"The existing shortage of trained health educators and the demand for expansion of health education activities indicated both in this country and abroad highlight the need for qualified personnel with a thorough understanding of both public health and education," the Surgeon General said.

Basil O'Connor, President of the National Foundation for Infantile Paralysis, pointed out that coördination of official and voluntary agencies on a community basis will make available the services of competent health educators whose aid will be invaluable in solving community health problems. He stressed the assistance to be given by such a group during an infantile paralysis outbreak in informing residents about the disease and the necessity for long continued aftercare of patients.

Fellowship application forms may be obtained from the Surgeon General, U. S. Public Health Service, Washington 14, D. C. Applications must be accompanied by a transcript of college credits and a small photograph, and must be in the office of the Surgeon General not later than June 1, 1945.